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Smales problem for critical points on certain two rays

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Abstract

Let f be a polynomial of degree n ≥ 2 with f(0)= 0 and f′(0)= 1. We prove that there is a critical point ζ of f with |f(ζ)/ζ| ≤ 1/2 provided that the critical points of f lie in the sector {re iθ:r > 0,|θ| ≤ π/6}, and |f(ζ)/ζ| < 2/3 if they lie in the union of the two rays {1+re±iθ:r ≥ 0}, where 0 < θ ≤ π /2. Copyright © 2010 Australian Mathematical Publishing Association Inc.

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Keywords

Critical points, Polynomials, Smales problem